SAMSUNG

INSTALLATION MANUAL

APV48Q0AN

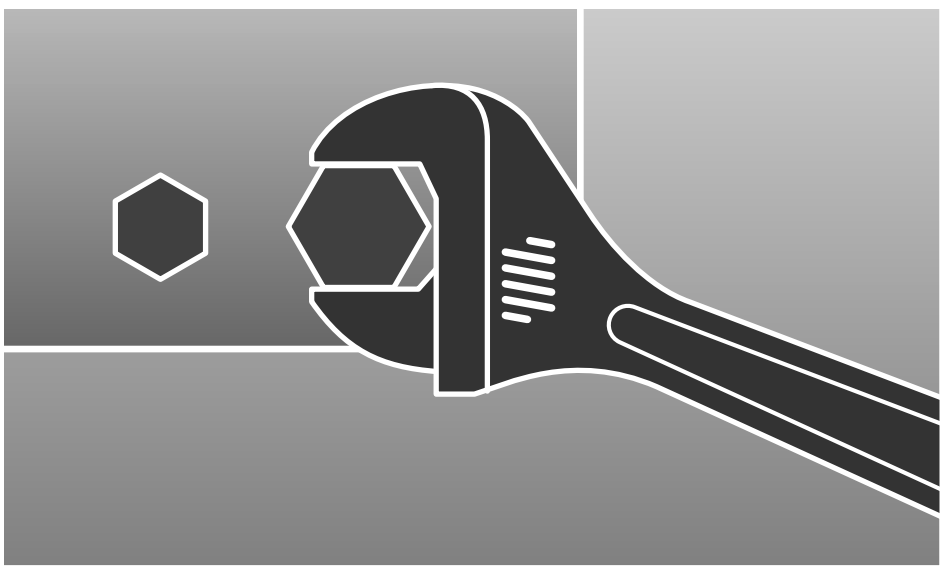
ENGLISH

ESPAÑOL

FRANÇAIS

FLOOR STAND TYPE AIR CONDITIONER

(Cooling and Heating)



ⒺⓈⒻ DB98-00000A(1)

SAFETY PRECAUTIONS

Carefully follow the precautions listed below because they are essential to guarantee the safety of the equipment.)

⚠ WARNING

- ◆ Always disconnect the air conditioner from the power supply before servicing it or accessing its internal components.
- ◆ Verify that installation and testing operations are performed by qualified personnel.
- ◆ Verify that the air conditioner is not installed in an easily accessible area.

GENERAL INFORMATION

- ◆ Carefully read the content of this manual before installing the air conditioner and store the manual in a safe place in order to be able to use it as reference after installation.
- ◆ For maximum safety,installers should always carefully read the following warnings.
- ◆ Store the operation and installation manual in a safe location and remember to hand it over to the new owner if the air conditioner is sold or transferred.
- ◆ This manual explains how to install an indoor unit with a split system with two SAMSUNG units. The use of other types of units with different control systems may damage the units and invalidate the warranty. The manufacturer shall not be responsible for damages arising from the use of non compliant units.
- ◆ The manufacturer shall not be responsible for damage originating from unauthorized changes or the improper connection of electric and requirements set forth in the “Operating limits ” table,included in the manual,shall immediately invalidate the warranty.
- ◆ The air conditioner should be used only for the applications for which it has been designed:the indoor unit is not suitable to be installed in areas used for laundry.
- ◆ Do not use the units if damaged.If problems occur,switch the unit off and disconnect it from the power supply.
- ◆ In order to prevent electric shocks,fires or injuries,always stop the unit,disable the protection switch and contact SAMSUNG ’s technical support if the unit produces smoke,if the power cable is hot or damaged or if the unit is very noisy.
- ◆ Always remember to inspect the unit,electric connections,refrigerant tubes and protections regularly. These operations should be performed by qualified personnel only.
- ◆ The unit contains moving parts,which should always be kept out of the reach of children.
- ◆ Do not attempt to repair,move,alter or reinstall the unit.If performed by unauthorized personnel,these operations may cause electric shocks or fires.
- ◆ Do not place containers with liquids or other objects on the unit.
- ◆ All the materials used for the manufacture and packaging of the air conditioner are recyclable.
- ◆ The packing material and exhaust batteries of the remote control (optional)must be disposed of in accordance with current laws.
- ◆ The air conditioner contains a refrigerant that has to be disposed of as special waste.At the end of its life cycle, the air conditioner must be disposed of in authorized centers or returned to the retailer so that it can be disposed of correctly and safely.

INSTALLING THE UNIT

IMPORTANT : When installing the unit,always remember to connect first the refrigerant tubes,then the electrical lines. Always disassemble the electric lines before the refrigerant tubes.

- ◆ Upon receipt,inspect the product to verify that it has not been damaged during transport.If the product appears damaged, DO NOT INSTALL it and immediately report the damage to the carrier or retailer (if the installer or the authorized technician has collected the material from the retailer.)

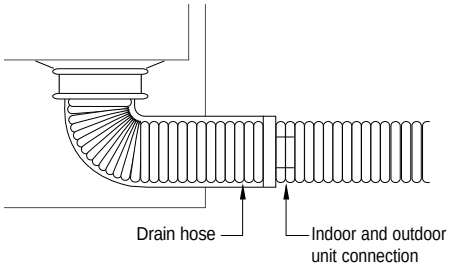
- ◆ After completing the installation,always carry out a functional test and provide the instructions on how to operate the air conditioner to the user.
- ◆ Do not use the air conditioner in environments with hazardous substances or close to equipment that release free flames to avoid the occurrence of fires,explosions or injuries.

POWER SUPPLY LINE,FUSE OR CIRCUIT BREAKER

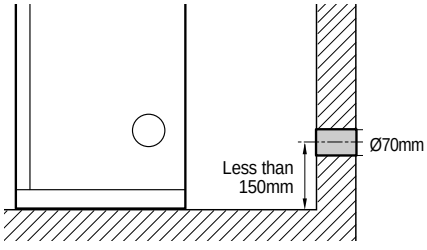
- ◆ Always make sure that the power supply is compliant with current safety standards.Always install the air conditioner in compliance with current local safety standards.
- ◆ Always verify that a suitable grounding connection is available.
- ◆ Verify that the voltage and frequency of the power supply comply with the specifications and that the installed power is sufficient to ensure the operation of any other domestic appliance connected to the same electric lines.
- ◆ Always verify that the cut-off and protection switches are suitably dimensioned.
- ◆ Verify that the air conditioner is connected to the power supply in accordance with the instructions provided in the wiring diagram included in the manual.
- ◆ Always verify that electric connections (cable entry,section of leads,protections …)are compliant with the electric specifications and with the instructions provided in the wiring scheme.Always verify that all connections comply with the standards applicable to the installation of air conditioners.

Absolute Checkpoints

1. Drain check



2. Drilling a hole in the wall



▶ Refer to page 11 for detailed procedures. ◀

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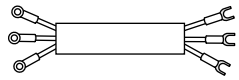
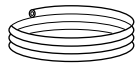
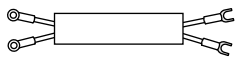
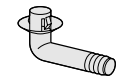
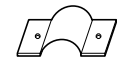
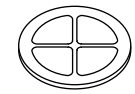
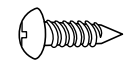
ACCESSORY PARTS LIST

No.	Part Name	Remarks
1	Drain hose	
2	Connecting pipe ø9.52mm (3/8 inch)	
3	Connecting pipe ø19.05mm (3/4 inch)	
4	Connection wiring (3 strand) 	
5	Insulation for piping 	
6	Finishing tape	
7	Wire of sensor (2 strand) 	

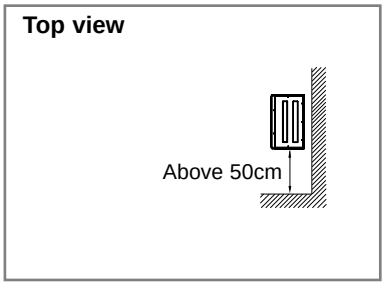
No.	Part Name	Remarks
8	Drain plug 	
9	Cable tie	
10	Putty	
11	Pipe band 	
12	Cover hole 	
13	Screw 	

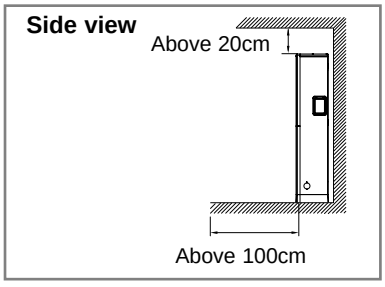
❋ The type and quantity may differ depending on the specifications.

SELECTION OF INSTALLATION PLACE

Indoor Unit

- ◆ Install the unit at a place close to the wall facing the outside as it is necessary to perform piping connection with the outdoor unit.
  - It is effective to install the unit at a window side to ensure uniform distribution of indoor temperature.
- ◆ Install the unit at a place where there is no obstacle against the wind around the air inlet and air outlet.
- ◆ Install the unit horizontally at a stable, rigid place.
  (When installing the unit at a place subjected to oscillation, noise may occur.)
- ◆ Avoid a place near the door which is frequented by people.
- ◆ Avoid a place subject to direct sunlight.
- ◆ Do not push or hang on to the indoor unit. It may fall and cause personal injury.



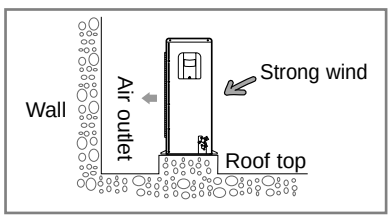


Outdoor Unit

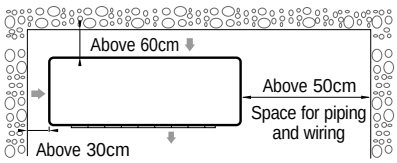
- ◆ A place free from the risk of combustible gas leakage.
- ◆ A place which can bear the weight of the unit.
- ◆ A place which can bear the fixing strength of the outdoor unit.
- ◆ Avoid a place subject to oil (including machine oil).
- ◆ Avoid a saline place.
- ◆ Avoid a place subject to sulfide gas (hot spring zone).
  (When installing the unit at such special environmental conditions, it may cause machine trouble. When it is unavoidable to use such places, It requires special maintenance.)
- ◆ A place where the discharge air and noise of the outdoor unit do not disturb the neighborhood.
  (Take special care not to cause any inconvenience to your neighbors when installing the unit on the borderline with your neighborhood.)
- ◆ A place where strong wind does not head against the air outlet of the outdoor unit.
  (If a strong wind heads directly against the air outlet at the time of cooling operation, a safety device can be operated.)
- ◆ Do not install the outdoor unit at an unstable place such as outer wall of an apartment or building. The outdoor unit may fall down, causing severe personal or property damage or loss.

❋ If there is any unavoidable reason to install the unit at such a place, take the following measures against the wind;

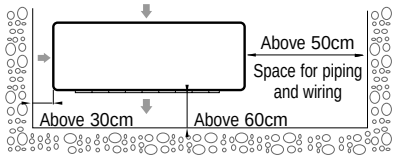
1. When installing the unit at a roadside concentrated with buildings, install it parallel with the road.
2. Install the unit so that the air outlet faces toward the wall at a place such as rooftop, which may be subjected to strong wind.



- ◆ The outdoor unit should be installed in accordance with the service space.



The air inlet faces toward the wall.



The air outlet faces toward the wall.

ELECTRICAL WORK

The electrical work should be performed by a specialist qualified for the work.

- ◆ Use the three phase power supply, and be sure to install the sub power distributing board for exclusive use with the unit(separately purchased by the user).
- ❋ Do not connect multiple plugs to an outlet at once because it can cause a drop in voltage, resulting in poor performance of the automatic control circuit.
- ◆ Be sure to install circuit breaker (Extra purchased by the user).
- ◆ Be sure to connect the grounding wire.

❑ *Electric power specification*

Model		APV48Q0AN
Power		1ø, 208~230V, 60Hz
Ampere of breaker		50 A
Knife switch	Switch	30 A
	Fuse	30 A
Size of grounding wire		2.0mm^2
Min. size of electric wires from/to the indoor/outdoor unit		0.75mm^2
Size of electric input wires		4mm^2

CAUTION

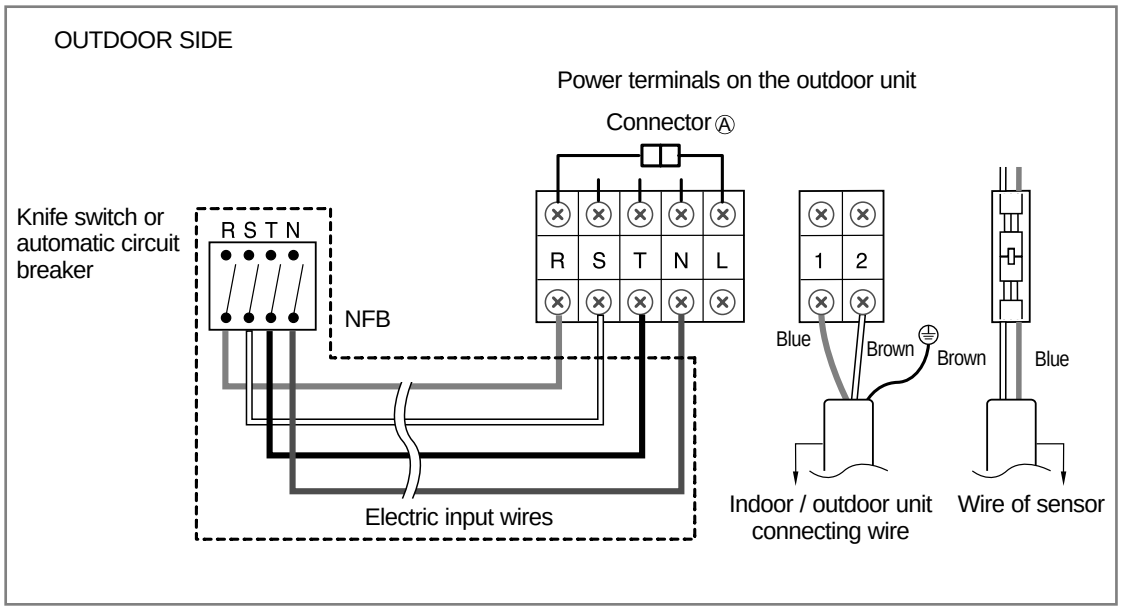
- ◆ Be sure to use the wires, and switches or fuses of power distribution board are qualified and fulfill the specifications.
- ◆ Be sure to install knife switch or circuit breaker on the power distribution board.
- ◆ The electrical and grounding work should be performed as per ‘technical specifications of electrical facilities’ and ‘specifications of internal wiring’.
- ◆ Be sure to connect the main electrical input wires with bolted connectors using compressed terminal.

❑ *When connecting 3Phase 4wires 380V AC*

When using NFB (No Fuse Breaker)

❋ The outdoor unit circuit is shipped based on the NFB power source wiring.

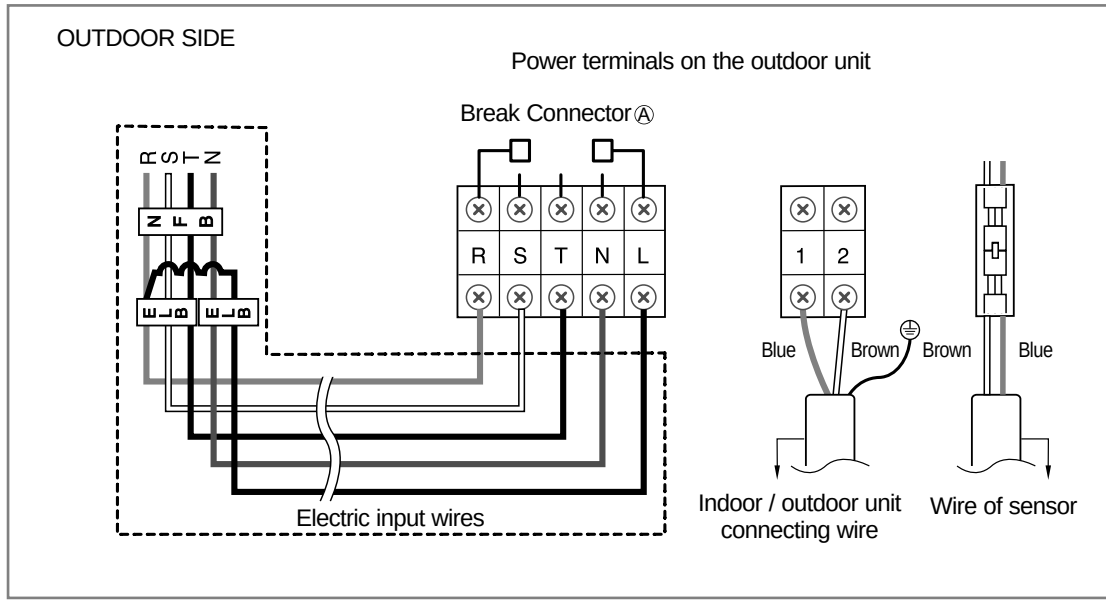
1. Remove the cover of electric box on side panel of the outdoor unit.
2. Connect the electric input wires (R,S,T,N) to each terminal (R,S,T,N) of the electric box on the outdoor unit respectively. (Input wires are purchased by the user separately.)
3. Connect the electric wires to each terminal on the indoor and outdoor unit respectively.



ELECTRICAL WORK

When using ELB (Earth Leakage Circuit Breaker)

1. Remove the cover of electric box on side panel of the outdoor unit.
2. Disconnect the connector A(R-L connection) from the outdoor unit.
3. Connect the electric input wires (R,S,T) to each terminal (R,S,T) and input wires (N,L) to each terminal (N,L) of the electric box on the outdoor unit respectively. (Input wires are purchased by the user separately.)
4. Connect the electric wires to each terminal on the indoor and outdoor unit respectively.

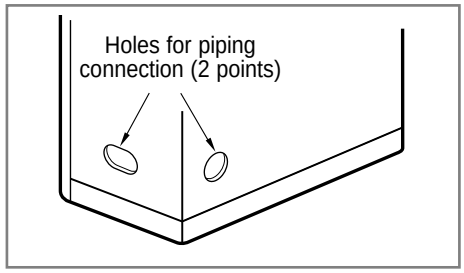


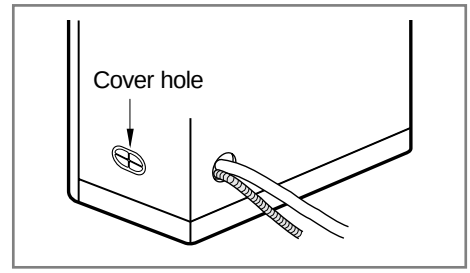
INSTALLATION METHOD

Connecting the Pipe

◆ The piping of this unit can be connected to the right, left, and rear side.
When you hit the area for piping connection slightly with a hammer, a hole is made.

◆ After connecting the piping and drain hose, insert the rubber cap as shown in the figure.





❋ The shape of hole may vary with the models.

INSTALLATION METHOD

Installation Procedures

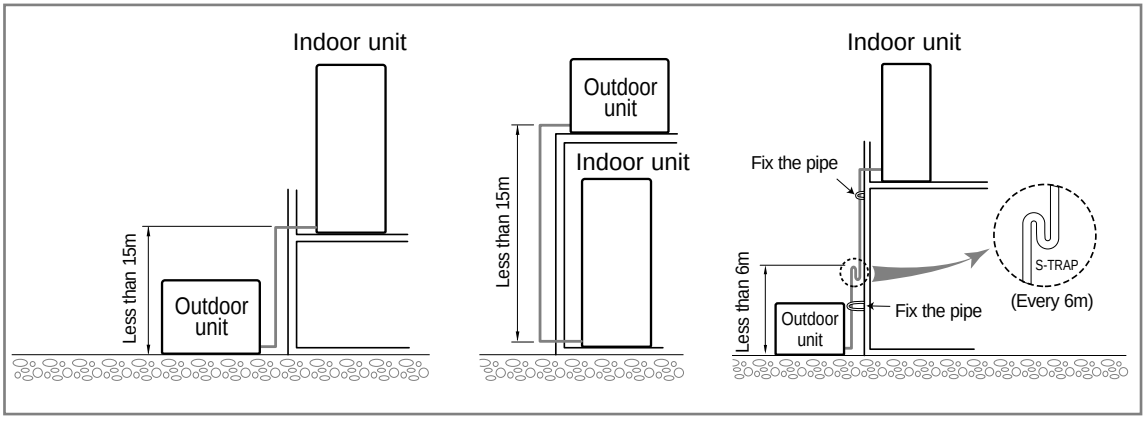
1. Open the front panel, and remove the flare nut.
2. Bend the connection pipe to an appropriate length using the spring bender depending upon the installation place.
   - Allowable pipe length : Maximum 75m
   - Allowable pipe drop distance : Maximum 30m
   - Make no more than ten bending points on the pipe.

❋ When the pipe length is in excess of the standard pipe length of 7.5m, add the refrigerant (R410A) of 40g for each additional 1m.

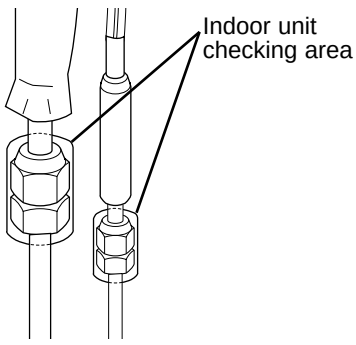
❋ Additional Refrigerant
For example : 15m pipe length, additional refrigerant to be charged is (15m-7.5m)X40g/m=300g

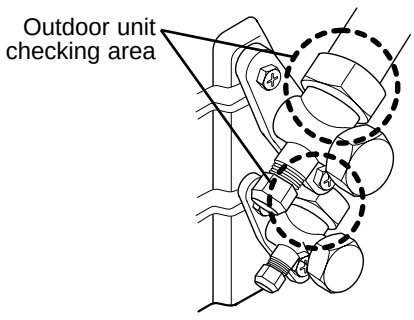
CAUTION

◆ If the pipe is lengthened, the performance of the unit is degraded, and the service life is shortened. Therefore, the pipe length should be as short as possible (less than 25m).



3. Install the high pressure pipe to the heat exchanger liquid pipe, and the low pressure pipe to the heat exchanger gas pipe respectively using the flare nut, taking care not to cause any leakage of refrigerant.
4. Be sure to insulate the pipe with appropriate insulation material.
5. Insert the drain hose into the drain pipe, and connect them by tying them to the cable tie to prevent any water leakage.
6. After completion of the installation, check the connecting area for any gas leakage.
7. Wind a finish tape when the wiring of the refrigerant pipe, the unit, and the drain piping are completed.



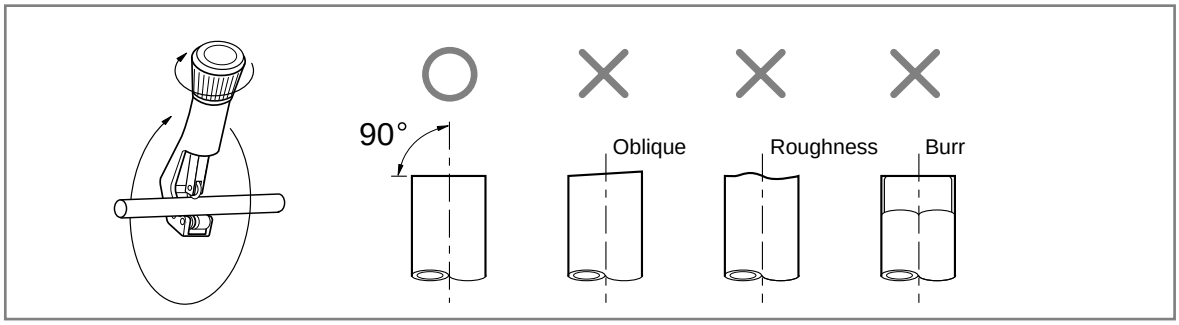


INSTALLATION METHOD

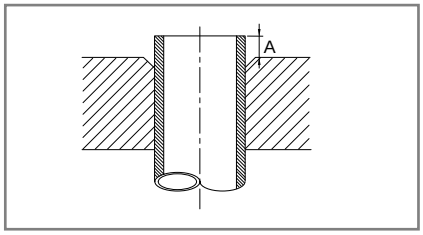
Connection of Refrigerant Piping

❑ Flare Processing

1. Cut the pipe using the pipe cutter.



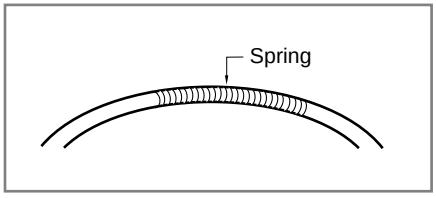
2. Insert the flare nut into the pipe, and then perform the flare processing.



Outer Diameter	A(mm)
9.52mm	1.8
19.05mm	2.2

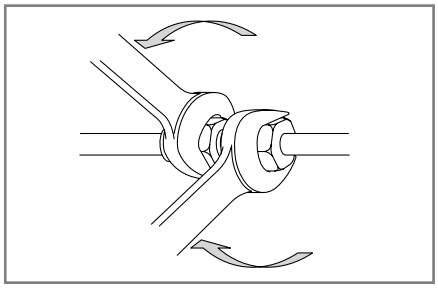
❑ Pipe Bending

1. Perform bending of the pipe using the bender which has a specified bending radius.
2. Be sure to take full care to perform bending of the pipe successfully at one time. Bending and unbending the pipe more than twice makes the bending work increasingly difficult.
3. You may use the spring inserted into the gas pipe instead of the bender to bend the pipe.
4. When you bend the pipe using the spring, hold the pipe with both hands to prevent any distortion, and secure a minimum bending radius of more than 100mm.



❑ Tightening of Connection Parts

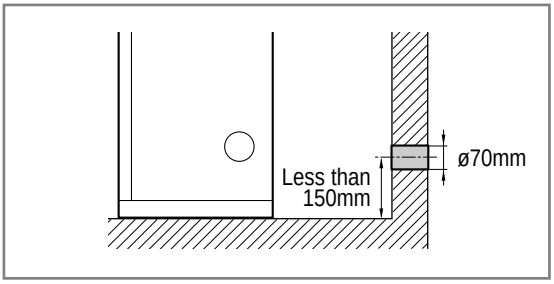
◆ Align the center of the connection piping, and tighten the flare nut by turning it with hand. Then tighten it again using the torque wrench in the direction as shown in the figure.



Outer Diameter	Torque (kgf•cm)	Remarks
9.52mm	250~280	
19.05mm	990~1210	

Drilling a Hole in the Wall

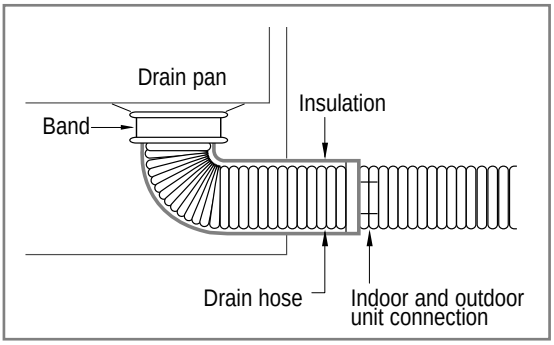
- ◆ Drill a hole of 70mm in diameter to the outside.
- ◆ The drilling should be done at a distance of less than 150mm from the floor facing the indoor unit.



Drain Hose

- ◆ Extend the drain hose to the drain hose connected to the drain pan, and fix it with the tape or a cable-tie to prevent separation. Then make a covering of it so that water cannot flow outwardly.

Piping Material	Vinyl Chloride (Outer diameter ø16mm)
Insulator	Foamed Polyethylene



CAUTION

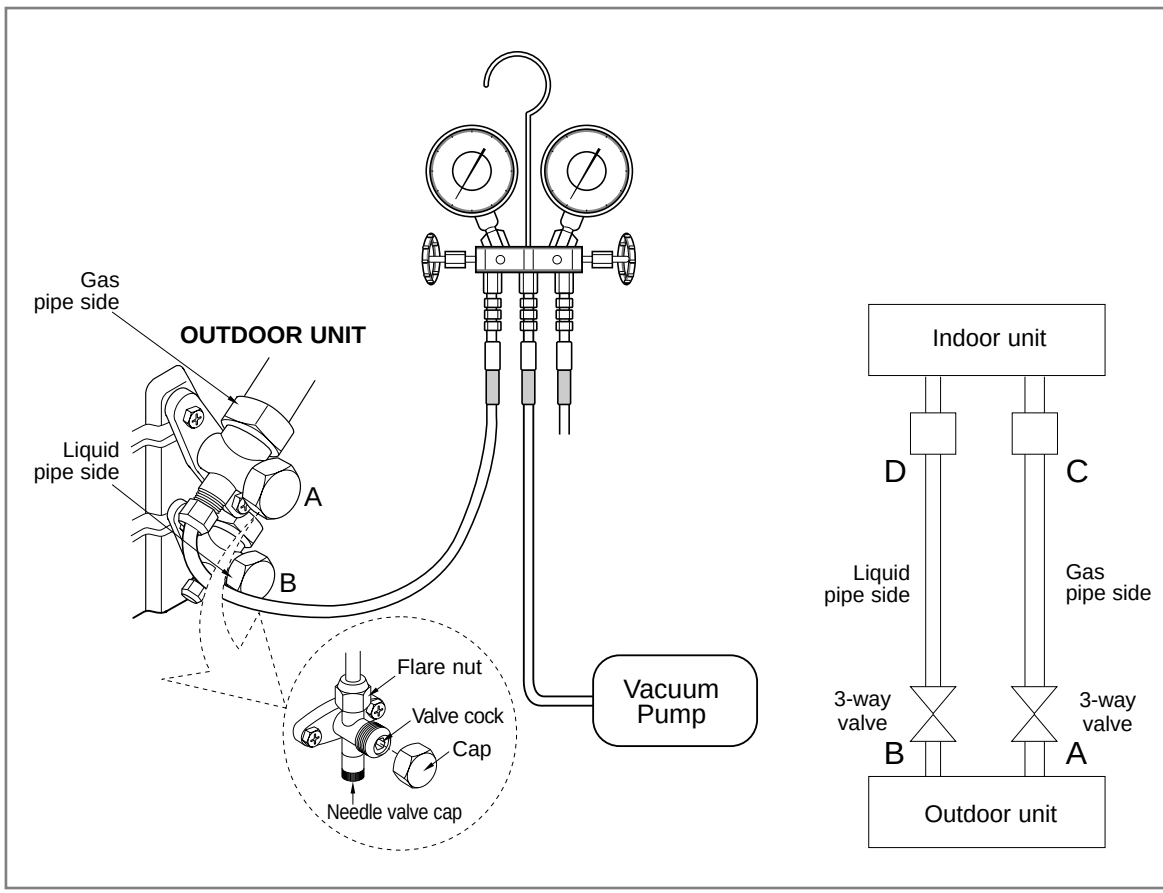
1. As the draining is of natural drain type, make the drain hose direct downward.
2. If there is any foreign substance in the drain plate, it may clog the drain pipe. Therefore, be sure to remove the foreign substance inside after installation.
3. After completion of installation, be sure to pour water into the drain pan, and then check the draining condition. (There is no problem in draining when the draining is completed within 20 seconds.)

AIR PURGE

✵ Be sure that all valve cocks are closed.

◆ The air in the indoor unit and in the pipe must be purged. If air remains in the refrigeration pipes, it will affect the compressor, reduce to cooling capacity and could lead to a malfunction.
Use Vacuum Pump as shown at the figure.

1. Connect each assembly pipe to the appropriate valve on the outdoor unit and tighten the flare nut.
2. Connect the charging hose of low pressure side of manifold gauge to the packed valve having a service port as shown at the figure.
3. Open the valve of the low pressure side of manifold gauge counter-clockwise.
4. Purge the air from the system using vacuum pump for about 30 minutes.
   - Close the valve of the low pressure side of manifold gauge clockwise.
   - Make sure that pressure gauge show -0.1MPa(-76cmHg) after about 30 minutes.
   - This procedure is very important in order to avoid gas leak.
   - Turn off the vacuum pump.
   - Remove the hose of the low pressure side of manifold gauge.
5. Set valve cork of both liquid side and gas side of packed valve to the open position.
6. Mount the valve stem nuts and the service port cap to the valve, and tighten them at the torque of 183kgf•cm with a torque wrench.
7. Check for gas leakage.
   - At this time, especially check for gas leakage from the 3-way valve's stem nuts, and from the service port cap.



REFRIGERANT CHARGING

Purge air (at the time of new installation only).

↓

Close the gas pipe side valve by turning it clockwise.
Connect the pressure gauge to the low pressure side service valve, and then open the gas pipe side valve again.

↓

Connect it to the refrigerant filling tank.

↓

Start cooling operation.

↓

Check the pressure of the pressure gauge.
Check whether the low pressure side is within the range of 8.2~9.3kg/cm^{2}G
(outside temperature 35°C).

↓

Open the tank and refill the refrigerant until arriving at the proper pressure.
(Refill the refrigerant slowly checking the pressure.)

↓

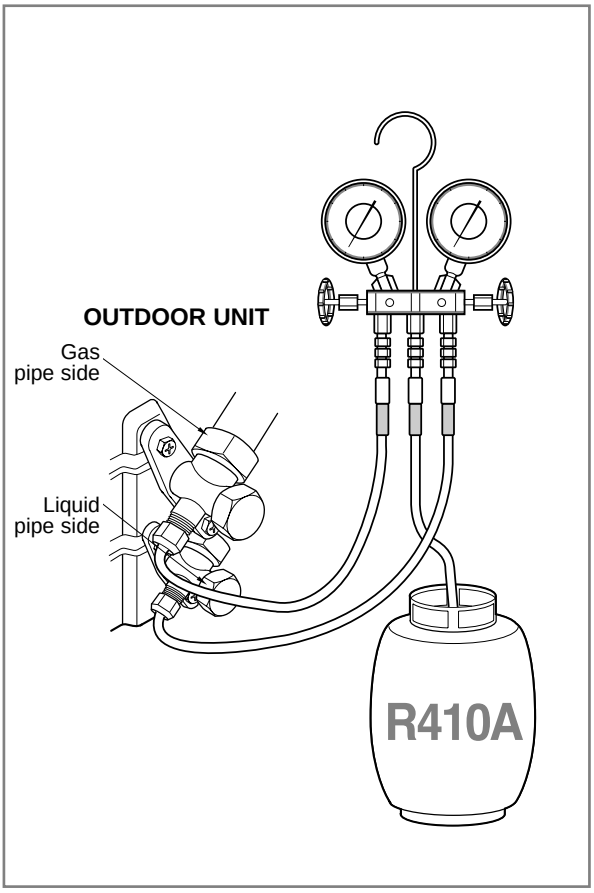
Stop operation.

↓

Close the gas pipe side valve, and loosen the pressure gauge connected.
Then open the gas pipe side valve again.

↓

Tighten the cap of each valve using a specified tool.



CAUTION

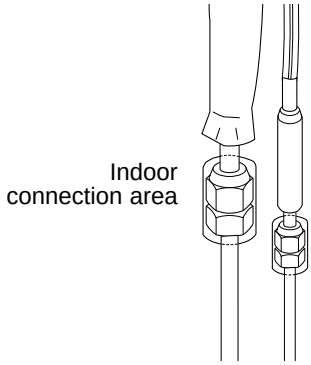
- Always use R410A refrigerant to avoid damage of the unit or an explosion.
- Must keep the quantity of refrigerant by using a balance. Do not use a manometer or not depend on your experiences.

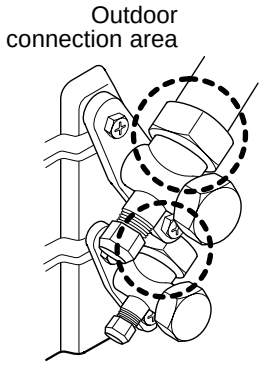
CHECK AND TEST OPERATION

Check

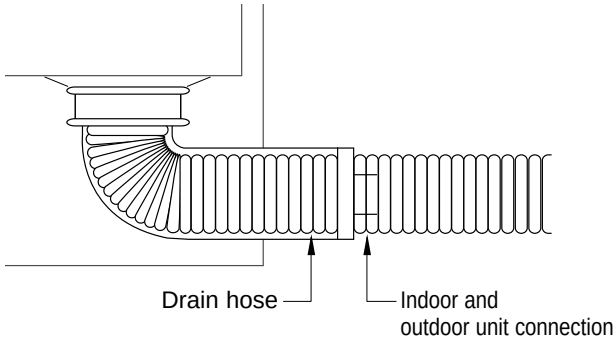
◆ Be sure to check the following again after completion of installation.

1. Check the piping connection area for any gas leakage.

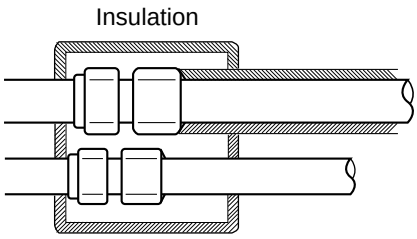




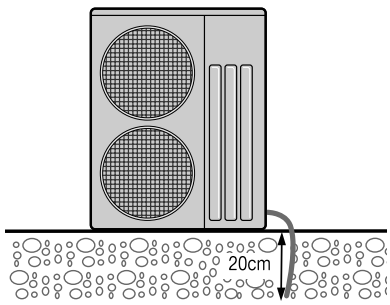
2. Is the drain hose properly connected?



3. Is the insulation of the piping in good condition?



4. Is grounding properly made?



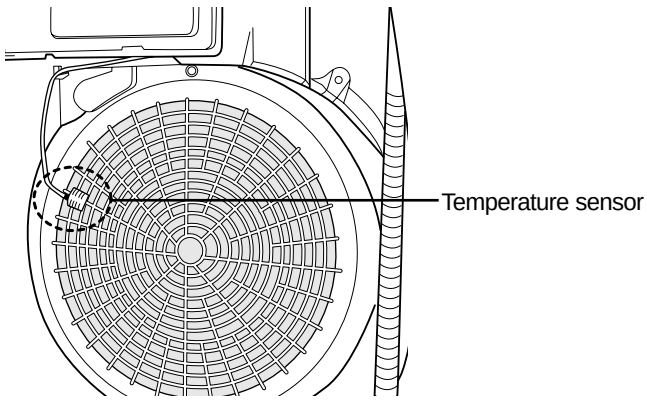
Test Operation

◆ After checking, read the owner's instructions carefully, and perform a test operation.
Then deliver the unit to the customer.
(When delivering the unit, be sure to read carefully and follow the contents of the owner's instructions.)

CAUTION

1. Be sure to check whether the service valve is opened before attempting to perform the test operation.
2. Never attempt to start test operation by force pressing the electronic contactor as it is very dangerous.
(This is very dangerous as the protective device does not work.)
3. Be sure to perform the test operation after installation.
It is easy to start the test operation in winter if you increase the sensor temperature to 23°C~25°C by holding the indoor temperature sensor. (Cooling operation)

❋ When the outdoor temperature is below zero, do not test operation for more than 3 minutes. Otherwise, the compressor will be damaged.



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